U.S. Department of Energy
Office of River Protection
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

0072878

MAY 15 2007

07-ESQ-088

Ms. Jane Hedges, Program Manager
Nuclear Waste Program
Washington State
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

RECEIVED
MAY 16 2007
EDMC

Dear Ms. Hedges:

REQUEST FOR MODIFICATION TO CRITERIA AND TOXICS AIR EMISSIONS NOTICE OF CONSTRUCTION (NOC) APPLICATION FOR OPERATIONS OF WASTE RETRIEVAL SYSTEMS IN SINGLE-SHELL TANK (SST) FARMS

References:
1. Ecology letter from J. A. Hedges to S. J. Olinger, ORP, "Finding of Violation of Order DE05NWP-002, Revision 1," 0700137, dated April 10, 2007. 0072670
2. Ecology letter from D. W. Hendrickson to S. J. Olinger, ORP, "Determination of Incomplete Application to Modify Order DE05NWP-002, Revision 1," dated March 7, 2007. 0072358

Pursuant to the referenced correspondence from Washington State Department of Ecology, and in accordance with NOC Approval Order DE05NWP-002, Revision 1, CH2M HILL Hanford Group, Inc. requests a modification to the Criteria and Toxics Air Emissions NOC Application for Operations of Waste Retrieval Systems in SST Farms. Attached for submittal, is a Hanford Site Air Operating Permit Notification of Administrative Permit Amendment.

The modification consists of a request to include three additional Toxic Air Pollutants (TAP) to the list of chemicals identified in Tables B-1 and C-1 of the NOC, which is reissued as Table 2 of the NOC Approval Order DE05NWP-002, Revision 1. Stack sampling from the exhauster during SST retrieval activities indicated the presence of TAPs that have not been identified in previous versions of this permit. The chemicals found include n-Nitrosodi-n-propylamine (CAS #621-64-1), n-Nitrosodi-n-butylamine (CAS #924-16-3), and n-Nitrosomethylethylamine (CAS #10595-95-6).

Reference 2, Item 1, requests analyses demonstrating compliance with Acceptable Source Impact Levels (ASIL) or screening levels for newly identified TAPs to be included within the permit, as identified in Table 1, "Proposed Standards under Order DE05NWP-002." Potential emission estimates of the three newly identified nitrosoamines were calculated using methods consistent with the original NOC. Estimates were not performed for n-Nitrosodiethylamine herein, as no source term has been detected from which to base a derivation. Potential emissions of the remainder of the chemicals listed on Table 1 have been previously determined and permitted or are not presently regulated under Washington Administrative Code 173-460.

An analysis of the dispersed concentration at the site boundary was performed, as requested in Reference 2, Item 2, using AERMOD, as required by the U.S. Environmental Protection Agency. The emission estimates and dispersion analysis are presented in the attached Hanford Site Air Operating Permit Minor Modifications Request. The results were below ASILs for n-Nitrosodi-n-butylamine and below suggested screening levels for n-Nitrosodi-n-propylamine and n-Nitrosomethylethylamine, which currently have no assigned ASILs.

Reference 2, Item 3, requests Toxics Best Available Control Technology (T-BACT) information regarding newly identified chemicals. The T-BACT analysis originally performed for retrieval activities considered these chemicals as part of the family of notrisamines. T-BACT was determined to be operations of the standard exhauster configuration (moisture eliminator, preheater, high-efficiency particular air filters, fan, and stack with monitoring instruments) with periodic monitoring to confirm that the estimated emission parameters are accurate. This treatment technology remains T-BACT for these pollutants.

No new construction activities, nor process changes, will take place as a result of this modification, and no actual emission increases of criteria air pollutants nor TAPs are expected as a result of the changes.

Upon approval of this modification, please process the attached Air Operating Permit Administrative Permit Amendment.

If you have any questions, please contact me, or your staff may contact Dennis W. Bowser, Office of Environmental Safety and Quality, (509) 373-2566.

Sincerely,

W Q Taylor

for Shirley J. Olinger, Acting Manager
Office of River Protection

ESQ:DWB

Attachment

cc: See page 3

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cc w/attach:
D. W. Hendrickson, Ecology
O. S. Wang, Ecology
N. A. Homan, FHI
Administrative Record S-2-4 H-0-9
CH2M HILL Correspondence
Environmental Portal, LMSI

cc w/o attach:
J. M. Atwood, BNI
B. G. Erlandson, BNI
C. J. Kemp, CH2M HILL
L. L. Penn, CH2M HILL
M. S. Spears, CH2M HILL
P. C. Miller, CH2M HILL
J. Cox, CTUIR
S. Harris, CTUIR
B. Becker-Khaleel, Ecology
K. A. Conaway, Ecology
S. L. Dahl, Ecology
S. L. Derrick, Ecology
J. L. Hensley, Ecology
J. J. Lyon, Ecology
D. Bartus, EPA c/o Ecology
D. Zhen, EPA
J. A. Bates, FHI
K. A. Peterson, FHI
G. Bohnee, NPT
K. Niles, Oregon Energy
M. F. Jarvis, RL
A. W. Conklin, WDOH
R. Jim, YN

Attachment
07-ESQ-088

Hanford Site Air Operating Permit Number 00-05-006
Notification of Administrative Permit Amendment

HANFORD SITE AIR OPERATING PERMIT

Notification of Administrative Permit Amendment

This notification is provided to the Washington State Department of Ecology, Washington State Department of Health, and the U.S. Environmental Protection Agency as notice of an administrative permit amendment described as follows.

This change is allowed pursuant to WAC 173-401-720(1) and WAC 173-401-720(2):
1. Corrects typographical errors,
2. Identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change at the source,
3. Requires more frequent monitoring or reporting by the permittee,
4. Allows for a change in ownership or operational control of a source where the permitting authority determines that no other change is necessary, provided that a written agreement containing the specific information of the transfer between the current and new permittee has been submitted to the permitting authority,
5. Incorporates into the chapter 401 permit the terms, conditions, and provisions from orders approving notice of construction applications processed under an EPA-approved program; provided that the program meets procedural requirements listed in WAC 173-401, and
6. Changes addressed in the administrative permit amendment can be implemented immediately upon submittal.

Permit Number: 00-05-006

Provide the following information pursuant to WAC-173-401-720:

Description of the change:

Three newly identified TAPs are to be added to the Criteria & Toxics Air Emissions Notice of Construction Application for Operations of Waste Retrieval Systems in Single Shell Tank Farms and the Hanford Single Shell Tank Categorical Retrieval Toxic Air Pollutant Emission Estimate of NOC Approval Order DE05NWP-002, Rev. 1 as follows:

- n-Nitrosodi-n-propylamine (CAS #621-64-1),
- n-Nitrosodi-n-butylamine (CAS #924-16-3), and
- n-Nitrosomethylethylamine (CAS #10595-95-6).

Addendums to *Table B-1: Non-Waste Retrieval Activity TAP Emissions from Inside C Farm*, and *Table C-1: Waste Retrieval Activity TAP Emissions from Inside C Farm*, contained in the NOC, are attached, which provide an update of potential emissions of the newly identified chemicals. Only the calculations of potential emissions from inside the C-Farm are impacted, as none of the exhausters will be located outside the farm during any C-Farm retrieval. A possible stack increase to 90 feet is not planned for the duration of the C-Farm retrieval.

The Toxics Best Available Control Technology (T-BACT) analysis, originally performed for retrieval activities, considered these chemicals as part of the family of nitrosamines. T-BACT was determined to be operation of the standard exhauster configuration (moisture eliminator, preheater, high-efficiency particulate air filters, fan, and stack with monitoring instrumentation) with periodic monitoring to confirm that the estimated emission parameters are accurate. This treatment remains T-BACT for these pollutants.

Submittal Date of Change:

Upon approval of modification.

Describe the emissions from orders approving notice of construction applications processed under an EPA-approved program; provided that the program meets procedural requirements listed in WAC 173-401:

No new construction activities, nor process changes, will take place as a result of this modification; and no actual emission increases of Criteria Air Pollutants nor Toxic Air Pollutants are expected as a result of the changes.

Emission concentrations for the newly identified TAPs were estimated using dispersion modeling unit concentration dispersion factors developed with AERMOD (American Meteorological Society/U. S. Environmental Protection Agency Regulatory Model). Concentration factors for 24-hour and annual average releases in both the 200 East and 200 West Areas were developed. Averages are based on Hanford Site wind data collected from 2000 through 2005. The input files and resulting factors are as follows:

Source Name	Description	24 Hr Max	Annual Max	Location
E10_2000	2000 cfm, 10" diameter, 28' release height	1.10331	0.05182	15 km east
E6_1000	1000 cfm, 6" diameter, 17'release height	1.3288	0.05548	15 km east
E6_500	500 cfm, 6" diameter, 17' release height	1.81318	0.05979	15 km east

The resulting maximum factors for East Area of 0.05979 were applied to stack emissions to estimate the annual average contaminant concentrations and 1.81318 for a 24 hour average concentration at the Hanford Site boundary. These factors were multiplied by the emissions in g/s. The results give pollutant concentrations at the Site boundary in micrograms per cubic meter. The location on the Site boundary for the East Area with the highest potential impact was determined to be 15 kilometer (9.3 miles) in the east direction.

The emission rates and method of calculation were performed consistent with the original NOC application and subsequent revision. The results were below acceptable source impact levels (ASILs) for n-Nitrosodi-n-butylamine and below Ecology suggested screening levels for n-Nitrosodi-n-propylamine and n-Nitrosomethylethylamine which currently have no assigned ASILs.

List the terms, conditions, and provisions from orders approving notice of construction applications processed under an EPA-approved program; provided that the program meets procedural requirements listed in WAC 173-401:

Agency provides.

For Hanford Site Use Only:

AOP Change Control Number:	**Date:**

Table B-1: Non-Waste Retrieval Activity TAP Emissions from Inside C Farm

Toxic Air Pollutant	Molecular Weight	[1]CAS #	[2]Farm Emissions divided by [3]SQER	[4]Farm Dispersed Emissions divided by [5]ASIL	Farm Ventilation System Startup Emissions (lbs/yr)	Startup Emissions for first 2.8 hours (lbs/hr)	Nominal Emissions (lbs/hr)
			D=F/SQER D=G/SQER		F=G*2.8+H*(8760-2.8)	G	H
n-Nitrosodi-n-butylamine	158	924-16-3	N/A	3.4E-06	2.5E-03	2.4E-05	2.8E-07
n-Nitrosodi-n-propylamine	139	621-64-1	N/A	2.5E-07	1.4E-04	1.4E-06	1.6E-08
n-Nitrosomethylethylamine	88.1	10595-95-6	N/A	3.2E-06	7.5E-04	7.3E-06	8.3E-08

[1] CAS is Chemical Abstracts Service number
[2] A value greater than 1 would indicate that the SQER was exceeded
[3] SQER is the Small Quantity Emission Rate (SQER) as defined in WAC 173-460-080
[4] A value greater than 1 would indicate that the ASIL was exceeded
[5] ASIL is the acceptable source impact level (ASIL) as defined in WAC 173-460-150 and -160

Table C-1: Waste Retrieval Activity TAP Emissions from Inside C Farm

Toxic Air Pollutant	Molecular Weight	CAS #	Farm Emissions divided by SQER	Farm Dispersed Emissions divided by ASIL	Farm Emissions During Retrieval Periods (lbs/yr)	Farm Emissions During Retrieval Periods (lbs/hr)
n-Nitrosodi-n-butylamine	158	924-16-3	N/A	8.5E-05	6.2E-02	7.1E-06
n-Nitrosodi-n-propylamine	139	621-64-1	N/A	6.2E-06	3.6E-03	4.1E-07
n-Nitrosomethylethylamine	88.1	10595-95-6	N/A	8.1E-05	1.9E-02	2.1E-06